Yuting Chen

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Education

Wuhan University, Wuhan, China **Spet. 2022-Present**

College of Life Science
Major: Biological Science **GPA: 3.83/4.00(11/159)**
CET-4: 619 CET-6: 559 TOEFL: 99 (out of 120)

Research Experiences

Directed Evolution of the EL222 Promoter for a DNA Cascade Recording System
Lab of Prof. Zhixiong Xie -Wuhan University **Nov. 2022-Nov. 2023**

- For realizing a biosensor for long-term and repeated monitoring, participated in the design of a DNA cascade system capable of recording level information using CRISPR.
- For facilitating rapid testing and control, involved in designing the EL222 blue light-controlled system, which was later constructed in *E.coli*.
- For reducing gene leakage from the EL222 promoter, performed directed evolution of the EL222 binding site using error-prone PCR and explored the efficiency of different binding sequences.

Design and Construction of an Adhesion System for an Engineered Intestinal Probiotic
Lab of Prof. Zhixiong Xie -Wuhan University **Nov. 2023-Oct. 2024**

- For addressing the issue of patients repeatedly taking nutritional peptides, participated in designing an engineered intestinal probiotic, including peptide secretion, colonization, and safety components.
- For ensuring the long-term colonization of the engineered probiotic, involved in the development of an adhesion system and designed the experimental methodology as the person in charge.
- For evaluating the expression levels of the target genes and corresponding proteins, performed molecular cloning for optimized expressions, followed by WB and an optimized protocol for detecting.
- For determining the phenotypic characteristics of the surface-display protein, performed immuno-fluorescence detection.
- For validating the feasibility of the system, constructed the adhesion system in *Escherichia coli* and verified using WB.

Exploring Regulatory Role of CRP in Bemzo[a]pyrene(BaP) Degradation by *Pseudomonas*
Lab of Prof. Zhixiong Xie -Wuhan University **Sept. 2023-Jun. 2024**

- For detecting the function of the CRP protein, performed gene knockout of *crp* to obtain a deficient strain, and subsequently, a revertant strain was constructed by homologous recombination method.
- For investigating the phenotypic changes caused by CRP protein, did primary screening for BaP degradation ability as well as swimming motility in the deficient, wild-type, and revertant strains.
- For excluding variable effects and isolating CRP protein, performed molecular cloning and optimized expression conditions for CRP protein.

● For detecting the interaction between CRP protein, cAMP, and the *rhd* promoter associated with BaP degradation, performed EMSA test.
● For measuring the expression levels of the *rhd* in the deficient, wild-type, and revertant strains., performed a qPCR assay.

Regulatory Role of Gene A in Glycolipid Metabolism
Lab of Academician Baoliang Song-Wuhan University **Feb. 2025-Present**
● For screening small-molecule compounds that target and inhibit Gene A, performed in vitro cell inhibition assays.
● For testing metabolic indicators and target protein expression levels in humanized Gene A mice, conducted systematic measurements of glycolipid metabolism parameters.
● For identifying efficient siRNAsagainst Gene A and establishing astable knockdown mouse model, participated in mouse phenotypic assessments.

Honors & Awards

● Gold Award for iGEM 2024, 2023 competition **Oct.2023, 2024**
● Best Foundational Advance Project Nomination and other 3 nominations (Best result for Wuhan University) **Nov. 2023**
● Inno Scholarship (only 16 in school) **Jan. 2024**
● Excellent League Member (Top 3% in school) **Apr. 2024**
● Merit student (Top 5% in college) **Sept. 2024**
● Second Class of Study Scholarship (Top 10% in college) **Sept. 2023, 2024**
● Excellent Student (Top 10-23% in college) **Sept. 2023**

Skills

Experimental skills:
● Proficient in conducting molecular biology experiments and certain immunological assays, such as Western blotting (WB), molecular cloning, immunofluorescence, etc.
● Cell culture techniques, such as subculturing, transfection, etc., as well as familiarization with P2 laboratory safety and operational protocols.
● Animal dissection techniques, such as euthanizing mice, organ sampling, etc.

Other skills:
● Python programming language, Photoshop, HTML, CSS, etc.